

ABSTRACT OF THE DISCLOSURE

A slurry for substantially simultaneously polishing a copper conductive structure of a semiconductor device structure and an adjacent barrier layer. The slurry, which is useful with a fixed-abrasive type polishing pad, is substantially abrasive-free and removes copper at a rate that is substantially the same as or faster than a rate at which it removes a material, such as tungsten, of the barrier layer. The slurry is formulated so as to oxidize copper at substantially the same rate as or at a faster rate than a material of the barrier layer is oxidized. Thus, copper and the barrier layer material have substantially the same oxidation energies in the slurry or the oxidation energy of the barrier layer material in the slurry may be greater than that of copper. Systems and methods for substantially polishing copper conductive structures and adjacent barrier structures on semiconductor device structures are also disclosed.

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